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St. Bartholomew's Hospital Journal,

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"Æquam memento rebus in arduis
Servare mentem."—Horace, Book ii., Ode iii.

Football as a Moral Agent.

THE above subject forms the theme of an article in the December number of the *Nineteenth Century*, by Mr. H. Hutchinson Almond, Head Master of Loretto. Speaking of the spread of football during the last twenty-five years, we are told that the first national football match (England v. Scotland) was played some time in the sixties by Association rules, and that the first national match under Rugby rules was played in 1870 at Edinburgh. So great since then has been the progress of the game, that in a single year more than a million sterling is paid in salaries to professional Association players in England alone. The interest taken by the public in football, too, is enormous, as is shown by the fact that over five millions sterling are spent in a single year in gate-money, and by the fact that "the final tie for the English Association Cup in 1893 was played at Manchester before about 40,000 people."

In dealing with the assertion that the physical danger of football outweighs all possible advantages, the writer adduces some interesting statistics. He says that "the

total number of deaths ascribed to football in the years 1890, 1891, and 1892 was twenty-three, twenty-two, and twenty-six respectively, whilst 154 broken limbs, and 212 minor accidents, some of them very minor, were reported in the same period." When we consider the enormous number of matches played and of players involved, these casualties form but a very infinitesimal proportion; probably as the writer says, not more than one in 50,000 players is killed annually. The opinion is expressed, and we are disposed to agree with it, that the most serious accidents arise out of rough play, which appears to be a result of professionalism and of cup-ties. This small proportion of accidents must be set against the advantages, for "by developing the chest and the limbs, by quickening the circulation and purifying the blood, football saves far more lives than it destroys."

The writer's words are so well chosen and express so entirely our own views on the moral effects of football, that we quote a paragraph at length:—

"Whatever tends to quicken the circulation, to raise the spirits and to purify the blood is, *ipso facto*, a moral agent. This is so at all ages, but it is more especially the case during the age of boyhood. It is an incalculable blessing to this country that such a sport is so enthusiastically beloved by almost all that part of our boyhood whom Nature has endowed with strong passions and overflowing energies. Its mere existence and the practical lessons which it preaches are worth all the books that have been written on youthful purity. I can say for myself that under the circumstances of the luxuriant and self-indulgent habits in which boys are increasingly brought up at home, the constant panic lest they should suffer any pain, the absence of apprehension lest their moral and physical fibre should become feeble by disuse, and the tendency of the examination system to make the development of character a secondary consideration, I would not care to face the responsibility of conducting a school were there not rooted in it, as I hope, an imperishable tradition, an enthusiastic love of football."

The educating influence of the football scrummage, the stimulating effects of contested games, and the far greater

value of football to physical training and health in these days of overcrowding and city life are all spoken of, and "if the football authorities only put down with a strong hand all rough and foul play, the game may . . . be an education in that spirit of chivalry, fairness, and good temper for which, if report speaks truly, the masses of our countrymen are scarcely as distinguished as their fathers were."

But there is another side to the question. The Association game has almost ceased to be representative. Most of the leading clubs of the North do not rear their teams,—they buy them. They are composed almost entirely of professionals. The effects of this are dangerous to the sportsmanlike nature of the game, for amateur players are now almost excluded from representing their town or county, and the money element is becoming too prominent. Although the Association—an amateur body—at present governs the game, yet with such an organisation as the League, the professionals could at any time take the management, and if this were to take place there would be the risk of corrupt practices, with the absolute destruction of true sport. The causes for this growth of professionalism are, according to the writer of the article in the *Nineteenth Century*, first, the introduction of cup-ties, and, secondly, ill-advised changes in the game.

With a discussion of these points and an enquiry as to the probable future of the Rugby game, an interesting article, which we advise all interested in the welfare of football to read, is brought to a close.

Mid-Sessional Address to the Abernethian Society on Recreation.

BY ANTHONY BOWLEY, F.R.C.S.

PERHAPS it is the season of the year, the Christmas vacation and the associations of Christmastide, that have turned my thoughts toward recreation, when considering on what subject I might address you this evening. But, if so, these are not the only causes, for I have long held that recreation itself deserves more study than falls to its lot in these days when the needs of education and of examination alone seem to attract interest and to arouse attention in the minds of many at the various centres of education.

But I claim for my subject at least this, that it is not only worth consideration for its own sake, but that in times when town life is for the many, and country life for the few, it is a subject closely associated with health itself, and therefore a most fitting one for consideration within the walls of St. Bartholomew's, where we expect to train those who will be able in practice as well as in precept to carry afar truths learned in the wards and in the school.

It is in this spirit, therefore, that I desire to approach

my subject, and, at the same time, I hope to show you that the matter is one affecting your personal interest and success, in addition to the well-being of your patients and your own pleasure.

I do not propose to define in any close or dogmatic way the meaning of the term recreation. Suffice it for our purposes that it implies the active participation in some act which gives pleasure to the individual, as apart from the performance of work, and that it is not the same as relaxation or rest. It does not mean mere laziness or cessation from work. I think that the term recreation ought also to imply that the occupation is at least harmless, that it cannot be twisted to include the pleasures of degraded natures to which we apply the term vice, and with such a limitation of my subject I shall myself be content.

Yet were I to attempt to deal with recreation as a mere abstraction on the one hand, or were I, on the other, to endeavour to criticise every variety of it, I should in each case attempt a hopeless task, so I propose to further limit my horizon and consider especially the recreations of youth, for it is only that aspect of the subject that can in any way interest you, and, indeed, it is only on that aspect of the subject that I can myself, as yet, speak from personal experience.

I think it is the very nature of recreation that it should vary with the work of the individual, and that while the recreation of a man whose work is one involving bodily exertion and fatigue would naturally be found in some gentler pursuit, the recreation of those whose work is of a more studious nature should be of a more active and stimulating character. I do not, of course, imply that to such the pleasure of music, or of art, of the drama, or of literature should be sealed books; indeed, I think it unfortunate that these are not much more considered by members of our profession than is the case, but to the youthful member of a laborious profession I would say: Consider in your choice of recreation the means best suited to promote your own health, and to bring you to a more intimate knowledge of mankind. These are the keys by which you may expect to open the doors of happiness as well as those of success in your life's work.

You may, perhaps, think that I am taking an exaggerated view of the importance of my subject when I make such a statement as this, yet I believe myself that I am well within the limits of strict accuracy in so speaking. Let me ask you to consider for a time one aspect of your profession, which forms, indeed, no part of any course of lectures, and can form no part of any systematic instruction, yet it is one of extreme importance. I mean the study and knowledge of human beings in health. No reading will ever teach you this, no lecturer can impart it. You must learn it for yourselves by your own observation, and to what purpose it is scarcely necessary to ask. The medical profession is not one in which you can ever gain a livelihood, much less achieve distinction, by mere book work or even by the

study of the sick. It is in no way to be compared to the study of language or of mathematics. These, and such as these, may indeed be studied apart altogether from contact with mankind, as may also many subjects of purely scientific interest. But you, on the other hand, must know men and women; you must learn to know them in health as well as in disease, you must acquire a knowledge of the character and pursuits of individuals and of classes.

It is in recreation, and not in hospital work alone, that you will learn the nature of the living creature whose diseases and injuries you aspire to treat. It is by acquiring such knowledge that you will be quick to sympathise with suffering, and to look at matters from the point of view of the patient. How can a mere book-worm, whose whole thoughts are centred on disease, and not on the subject of it, appreciate what the loss of ability to enjoy active exercise or athletic pursuits may mean to one whose very pleasures he cannot himself even understand? You will be quick to appreciate the desires or the fears of your patients in proportion as you can understand the aspirations and the pleasures of health. And it is in recreation that you will be able to gain the necessary experience, so that if I were only aiming at assisting you to success in practice I should advise you not to neglect in your pleasures the opportunities of the study of mankind.

But these are matters affecting chiefly the future, and I would prefer rather to dwell upon the present. Is it of advantage to you in your student life to enter into the sports and enjoyments of men of your own age? or should you occupy the whole of your available time in study? I have no hesitation in saying that my own experience as a teacher goes to prove that the men who do nothing but read and attend lectures are not the most well-informed or those most easy to teach. I am quite sure that it is best for all purposes that any young man should take interest in other things besides the work immediately bearing on his profession, and that if he does not do so he is liable to become dull and stupid, to get out of touch with his fellows, and to become at an early age what is commonly called a "bore." Yet, although this is a heavy charge to bring against those who take no interest in the pursuits natural to youth, I claim that further there is entailed a distinct failure in the performance of one of the chief duties of life—I mean the duty of preserving the health, a duty which seems to be forgotten nowadays when we hear so frequently of the duty of educating the intellect, and when so much is made of this that one might be almost tempted to believe that a man owes no duties to any part of his body except to his brain. You know very well that such neglect will in time tell upon the brain itself. You, who have studied physiology and anatomy, know better than other men of your years who are engaged in different occupations that a healthy brain cannot exist in an unhealthy body, and you know also that in the long run the man whose digestion or whose lungs fail loses his brain-power also. I hold myself that the preservation of

health is at least as important a duty as the cultivation of the intellect, and I assert that the latter is really dependent on the former, which therefore becomes the more important of the two. What I have in my mind is so clearly and tersely expressed by Tennyson that I make no excuse for quoting his words:

"Self-reverence, self-knowledge, self-control,
These three alone lead life to sovereign power."

These words express most clearly the main idea. A reverence for the man's own self is, I think, not sufficiently inculcated, and yet think how well worthy it is of encouragement. The true appreciation of the idea is itself of the greatest moral value. What a man truly reverences he will protect from injury and harm; he will strive to preserve and maintain, he will be unwilling that it should suffer any depreciation in the opinion of others. Apply this to the man himself and see how it will tend to protect him from evil habits, from unhealthy and enervating pursuits, from carelessness as to the preservation of his own health and activity. The maintenance of health is a duty that every man owes to himself, and, if for no other reason, healthy recreation deserves encouragement and assistance.

But, to turn once more to Tennyson's words—"self-knowledge" and "self-control"—these are what he next cites, and if you will read the lines which follow the ones I have quoted you will see that his ideal of "power" is a high one, and one to be justly aimed at. And surely self-knowledge and control are good in themselves; I do not go beyond the truth when I say that in healthy recreation they are to be found and developed. "How can a man come to know himself?" says Goethe, and he answers his own question thus: "Never by thinking, but by doing. Try to do your duty and you will know what you are worth." It is not by thinking and dreaming that self-knowledge is obtained. It is a matter of experience, and even of experiment, and it is by contact with others, and not in laborious study, that the self-knowledge grows and develops.

And thirdly I ask any of you, Is not self-control best learnt in active pursuits? There is but little necessity for it in mere labour. It is required, however, very largely in the football and cricket-field, in the boxing-ring and in the racing-boat. And if it is useful in any profession it is surely most useful in our own.

But now I would ask you to turn your thoughts for a short time to such forms of exercise in particular as are most readily obtainable by any of you who are students in London, and attached to this Hospital. Doubtless your opportunities for active exercise are not so great as might be wished, yet to anyone who is not too lazy the opportunities are sufficient to allow of a good deal of pleasure being obtained under existing conditions, and I trust that in the near future the possession of a ground of our own will greatly increase the facilities for recreation.

As to games themselves, I hold that they are best which require combination, and are dependent for success rather upon the combined efforts of a number than on the prowess of individuals. Thus I think that football and cricket are better than tennis or racquets, for in the former there is less tendency to encourage purely selfish play, and strong encouragement on the other hand to develop self-restraint and combination. Then such pursuits as these are especially well adapted to the members of a College such as ours, for they tend to increase *esprit de corps* amongst the students, and to make men do their best, not merely with the idea of personal gain, but rather to bring credit to St. Bartholomew's. And let me say here a few words on this subject in general. You will find that, whether you will or no, you will go through life with the stamp of St. Bartholomew's upon you. You will be known as a "Bart's man." What do you think? Is it good to be so stamped? And, if it is good, what is the reason? I think that most of you will already have formed the opinion that the stamp is a good one, and I am sure that in future years you will think so even more strongly. And the reason is plain to see. The reputation of this School depends on its past as well as on its present. The position of the Hospital of St. Bartholomew has been attained by a wise administration of its funds and a proper development of its resources by the lay administrators; by the work, the character, and the abilities of its medical and surgical staff; and, in addition, by the work and reputation of its former and present pupils. The work of the lay and of the medical staff is necessarily limited, and is mainly confined to, and known of, in London; but the wide renown of the Hospital is the result of the life work of those who have taken its name with them to all parts of the United Kingdom and beyond the seas. It is to the character and reputation of the men who have preceded you here as students that you owe the prestige which already is yours, and it is the duty of each of you, quite as much as it is the duty of members of the staff, to see that this prestige is maintained and handed on untarnished.

And what has this to do with recreation? you may ask. Just this. In your games as in your work you are still stamped as belonging to us, and in your games as in your work you must maintain the honour and reputation of the School. If a game is worth playing at all it is worth playing well. If it is a matter of a football or cricket team, an athletic team or a boat's crew, I would say that if any such is to be considered as representative of St. Bartholomew's, it is the duty of every man who represents us to see that he does his best for the sake of his School in whose name he appears. It is by so doing that others are led to take an interest in the doings of the few. You cannot all be members of a football eleven or fifteen, of a cricket team or a boat's crew, of a water polo or athletic team, but all of you may fairly claim an interest in the doings of such, and, as members of the same School, may claim a share in their successes. For, in whatever respect the School prospers,

and in whatever way its reputation is enhanced, some of the profits go to all who belong to it. See to it, then, for the honour of the School, that its representative clubs, so long as they are well managed, receive from all of you the support and encouragement they so fully deserve.

I am sure that by so doing you will really be helping yourselves. There are friendships made in the fellowship of the playing-fields which otherwise might never be made at all. You will get to know more of your fellow-students in your games than you ever can learn in the work of the school, for it is under such circumstances that you will learn most of a man's real nature. And further, even though you may not care for some particular game yourself, surely, if it is of sufficient importance to attract to it large numbers of other men, and if it arouses the enthusiasm of those who are anxious to see our own College successful in some inter-hospital contest, you must be somewhat selfish if you take no care for that which to many of those around you is, for the time at least, a matter of personal interest.

I think that those who so decline to take any part in that which attracts their fellow-students, who care not whether the result be disappointment or pleasure to those with whom they are placed in daily contact, cannot escape from the brand of selfishness, and must not feel surprised if, as a result, their own pleasures and disappointments excite no interest in turn.

And is there then anything to be said against your participation in such games as I have mentioned? I believe there is no good reason against your joining in any of them, although, of course, you may not excel in or even care for all of them. It is true that one does see in the press from time to time attacks upon football because it is "so rough" or "so dangerous," and upon boating because it is "such a strain upon the heart," etc. And combined with those there are suggestions that time so spent is wasted, and that energies devoted to such pursuits are ill-directed. I would reply to such critics that even if it were true that football and rowing, etc., were as dangerous as they say, that even if the time so spent might have been otherwise profitably employed, the advantages to health of body and of mind outweigh such objections a thousand-fold. I claim for active exercise that it promotes not only health and strength, but that it develops a spirit of independence of thought and action, that it encourages sobriety and regular living, and that it makes men brave, self-reliant, and generous. And to obtain such ends is it not worth while to run a little risk? Surely, yes! It is not in games only that risk is to be encountered. You have all plenty of risks to run in the work of your profession. Are you always going to consider these before you act? Is the risk to yourself to be ever prominent in deciding the course to pursue? Believe me, that those who write most against the risks of various games belong chiefly to one of two classes—those who really know very little of the subject, and those whose opinions on any subject would never be highly esteemed by sensible people.

It is not by such critics as these that progress is made; it is not in their ranks that you must expect to find leaders of men. So long as Englishmen admire pluck and resolution, so long as manliness and self-control are held in esteem, the national games which have produced these qualities in the past will maintain their hold on all those who are most worthy of being considered typical Englishmen. Those who decry such sports decry also any pursuit that involves risk or has in it the elements of danger. They consider hunting barbarous, shooting cruel and dangerous, and mountain-climbing a pastime fit only for lunatics. The reason really is that, being themselves timid and easily deterred by the dread of danger, they consider that others who are differently constituted must be protected against themselves. Surely these are not the people to whose opinions any weight need be attached.

There is, however, yet another aspect from which I would ask you to view recreation, namely, with regard to the benefit of the mere enjoyment it brings, for it is the pleasure derived from recreation of all kinds, rather than its subsequent gains to health, etc., which is the real attraction to those who take part in it. I think that from this point of view also it has everything to recommend it. The mere physical enjoyment is in itself good, and tends to make men more happy and contented. It tends also to make members of our profession more cheerful and satisfied, and I feel sure that it causes all of us to take a more hopeful view of difficulties and to think less of the cares and worries inseparable from the practice of our profession. The days are past, if they ever existed, when it was considered necessary for a physician to look preternaturally solemn and serious in order that his opinions should carry due weight, and the public generally agree that some form of physical enjoyment is just as necessary and as wise for their medical attendants as for themselves. You need not be afraid that anyone will think you any the worse doctor because you appreciate recreation, and because you prefer to take a cheerful view of things in general as a direct result.

And now, in conclusion, I will venture to give you a word of warning. If you would appreciate recreation you must learn first to work hard. It is after labour that some relaxation is most appreciated, and the pleasure of recreation is in proportion to the labour which has preceded it. I have said nothing to you this evening which can be interpreted into an excuse for idleness. There is a time for work and a time for play, and what I would have you do is to take full advantage of each. That the same men are often to the front in both work and play you must all of you have had many opportunities of seeing for yourselves, and it is because I am sure that recreation is good, both for its own sake and also for the sake of the proper performance of your duties in this Hospital, that I have ventured to speak in its praises to the members of the Abernethian Society, amongst whom I know are always to be found the men who from time to time are the leaders both in the school and in the field.

On Medical Practice and Original Research.

By LOUIS ROBINSON, M.D. DUR., M.R.C.S.

IN the branches of biological and medical research, which are at present attracting the attention of the scientific world, it has become well-nigh impossible for the medical man, who is actively engaged in the practice of his profession, to compete with the academic specialist. In order to achieve anything (it is said) one must have abundant leisure, good laboratory accommodation, and a mass of costly apparatus, the very manipulation of which requires no slight degree of technical knowledge and skill. As a result, the lamentable feeling of apathy which exists among general practitioners as regards the more scientific side of theoretic medicine has been enhanced by something like a feeling of despair. The day seems utterly gone by when a Jenner or a Parker might rise from the ranks to a foremost place in the world of science.

While admitting that it is true that no medical man engaged in general practice can expect to keep pace with, and still less outstrip, the trained investigators of our hospital schools and laboratories, I desire very strongly to combat the idea that original research, either in general biology or in medicine, is henceforth the monopoly of the scientific specialist.

Research, like all else in human affairs, is subject to the laws of fashion. This becomes obvious whichever way we look. In one decade there is a frantic thirst for knowledge about the geography of Central Africa, and every man who can contribute a trifle to meet the demand at once becomes famous. In the next it is the North Pole which excites the popular imagination, and the explorer of the Dark Continent is as one crying in the wilderness. The same rule holds good in the case of the other sciences. Aspirants for the honours of Burlington House recognise that their chances of election depend, in no slight degree, upon the particular vogue of the moment.

The application of these remarks to the present discussion is found in the fact that there has been for some years a decided fashion among the pioneers of medical science, which has consisted broadly of an almost exclusive devotion to research work involving high-power microscopes and all the complex paraphernalia of the biological laboratory.

Now no one can possibly find fault with this. The work so done is invaluable, and the workers deserve more honour than they get. It is the reaction upon the bulk of the profession which is to be lamented. They regard, and rightly regard, their teachers in the medical schools as the shining lights of their order. While at hospital they are initiated into the elementary stages of the methods of investigation employed by their masters in the craft. Through being made familiar with these methods, and through the in-

fluence of the microscopic Titan who directs their studies, and whose world-wide fame was won in this very field, they unconsciously imbibe the idea that it is in this direction *only* that there is any hope of progress.

It is the lot of by far the greater number of students who qualify from the medical schools to become general practitioners. Probably in no profession are men so much the sport of circumstances as in our own. However great an aptitude a man may show for research work, he is usually compelled soon after he gets his first qualification, to drop all thoughts of pursuing the particular branch of Medical Science which has most interested him when at the hospital. The result is that every year the ranks of the "G.P.'s" are swollen by numbers of men of first rate intelligence, who have won gold medals and other distinctions at college, but who feel compelled by circumstances to desert their old ideals.

In some instances, no doubt, such men, although successful as students, lack the mental initiative and resolution which will enable them to adapt themselves and their special faculties to the new conditions, and to continue their investigations alone. But there must be many others scattered about the country, who are well able to make good use of the abundant material which circumstances put within their reach, if they will only give their minds to the solution of the problems which are constantly presenting themselves to every man engaged in the practice of medicine. The medical student of to-day makes his start as a full-fledged practitioner infinitely better qualified for such pursuits than the medical student of twenty, or even ten, years ago. His five years' curriculum enables him to get a more thorough knowledge of those first principles which are as necessary for the building up of theories as the skeleton is to the human body. He receives instruction in biology which enables him to link together many facts which, to his predecessors, remained mere incomprehensible and sporadic phenomena. It is scarcely an exaggeration to say that now, for the first time, the sciences upon which that of Medicine is founded are being taught in accordance with the supreme biological discovery of the age. The modern student breathes an atmosphere of Evolution. His predecessors were only able to get occasional whiffs of this inspiring doctrine, and too often were compelled to go *outside* the lecture-room or the laboratory in search of them! There is an enormous difference between having one's biological knowledge rooted and grounded in the truth, and having a certain amount of truth spliced or grafted on when one's ideas are half grown. On this account alone I think we are justified in expecting great things of the men who are now in training for the profession.

What their dangers are, as investigators, I have already pointed out. Slavish imitations of the methods of the college professor or demonstrator can lead to nothing but discouragement in the case of those who have no laboratory at their disposal, and whose time is almost fully occupied in

attending to patients. They must be free from the bondage of scientific fashion, and must be prepared to plan their own course and their own methods. The frontiers of science are, in one respect, comparable to the frontiers of the British Empire. They owe their expansion far more to the work of independent enterprise, to "accident" and various unauthorised agencies, than to deliberate and organised endeavour on the part of the established powers. Nothing is further from my wish than to depreciate the scientific specialist; I merely want to make it plain—(1st) That he is not the sole heritor and repository of Scientific Truth; and (2nd), that his methods are not those by which the average medical man can hope to succeed in original research.

If we pass in review the names of those who have materially added to the sum of human knowledge, such as Newton, Dalton, Darwin, and Helmholtz, we find that they were men with minds which took a wide outlook over the field of nature, and who gathered light from all quarters of the mental horizon. The same may be said of the men who have left their mark for all time on Medical Science. The specialist who looks with "a microscopic eye" may fill up gaps in our knowledge of the detail of physical processes, and may so contribute some essential item to the building up of a valuable theory, just as a stonemason may contribute an essential item to a cathedral. But no mere specialist, with the limited field of vision which characterises the class, could have discovered the great principles underlying the processes of Nature which were brought to light by the men I have named. One can hardly imagine that a dentist or an oculist who ignored other branches of medical knowledge could have perceived the relation between "peg-top teeth" and interstitial keratitis; and still less could he have inferred, as Hutchinson did, that both were the result of congenital syphilis.

Not only do most students get the idea that pioneer work is only possible in the region which they see explored in the physiological and biological laboratories at the medical schools and kindred institutions, but they are liable to become also victims to the error so common among those who are groping and struggling among the elements of science, viz., that the whole subject has been pretty well threshed out, and that little else remains to be done. It seems strange that any man can remain under this astounding delusion after he has fought his way through the first rudiments, and has come in sight of the innumerable broken and ragged ends which form a fringe round the little solid knowledge which we possess. Almost any one of these, if followed diligently by an alert and open mind, will yield some new facts; and even although they may not be such as bring honours and titles to the discoverer, they never fail in kindling that enthusiasm for further research (which Lauder Brunton has traced to the fierce instinct for pursuit possessed by our savage ancestors) which, more than anything else, adds delight to the drudgery of professional work,

No new fact, however apparently trivial, is to be despised; for it is almost invariably a clue to something further, while it may prove the key to one of those great mysteries of existence which have hitherto baffled all efforts of the pioneers of science.

I have now reached the limits of my article; but on some future occasion I hope to have a opportunity of pointing out more in detail what parts of the field of (potential) knowledge seem to offer the best chances to the "ordinary" student or practitioner of medicine.

A Case of Empyema, with Remarks upon the Physical Signs Observed and upon Paracentesis.

BY SAMUEL WEST, M.D.

I WAS invited the other day to see a young man whose heart was beating forcibly on the right side of the sternum, almost as far as the nipple line. The whole left side being dull from the clavicle to the costal arch, it was clear that he was suffering from a large pleuritic effusion on that side; but in spite of the great displacement of the heart, the left side was not bulging, nor the intercostal space widened; the vocal vibrations were palpable over the whole axilla and even at the base behind, while the breathing was audible, and, though faint, was amphoric in character. These points, as well as a few others to be mentioned, deserve comment. 1. It may appear strange that with so large an effusion there was no bulging or widening of the intercostal spaces. Yet this is not altogether uncommon. I have seen the side which has been at first bulging lose its prominence, and that while the continued displacement of the heart showed that the fluid was still increasing. I remember a case of simple serous effusion in which I thought the fluid was being absorbed on account of the chest falling in and the ribs coming close together, and yet on paracentesis I removed the largest amount I have ever withdrawn in a single tapping, viz., 150 ounces.

2. The dullness not only reached the costal arch, but extended a little below it, just as the resonance sometimes does in pneumothorax, and for the same reason that the diaphragm had become convex towards the abdomen instead of concave.

3. The persistence of the vocal vibrations and breath sounds, or amphoric breathing, is rare, but bronchial breathing is not so very uncommon. The most remarkable case I have seen occurred in a young man with a serous effusion on the left side, over whose back and side the most typical bronchial breathing was present, as loud and as characteristic as is ever heard over pneumonic consolidation. The fluid was removed by tapping, and as it flowed away the bronchial breathing became less and less, and was ultimately replaced

by vesicular breathing. The fluid re-accumulated and the bronchial breathing returned. It was again drawn off, and the bronchial breathing disappeared as before.

4. Beneath the manubrium sterni, loud tracheal breathing was heard. This is a point to be noted when occurring in simple cases of effusion, for though not uncommon, I have known it lead to an error in diagnosis. The case was that of a middle-aged man, who was on that account wrongly thought to be suffering from a mediastinal growth to which the effusion was secondary. I remember another case in a woman in which the tracheal breathing beneath the sternum was so well marked that the question of mediastinal tumour was raised. This case was interesting for another reason, viz., that the voice and breath sounds were distinct and exaggerated over the whole dull side, and it was only the absolute strong dullness on percussion that decided the diagnosis in favour of fluid. The side was tapped, the fluid found serous, and when removed, the puzzling physical sign disappeared, and recovery was rapid and complete.

5. The patient's temperature was normal, or rather below normal. This, together with the fact that the patient's illness was of short duration—not more than a few days—would have suggested the diagnosis of serous rather than purulent effusion. A needle was inserted and the fluid found to be pus. This case, therefore, demonstrates another very important clinical fact, viz., that pus may exist in the pleural cavity without any elevation of temperature. There is no part of the body in which abscesses may not occur without fever. In the abdomen this is most of all true, for here a low temperature is no proof of the absence of pus, and the same holds good even of pelvic suppuration. I have seen pus in the pericardium without elevation of temperature, as well as in the brain, liver, kidney, lung, cervical tissue, and even in some joints, while of course the cold abscess of the skin is of every day occurrence. The patient's chest was tapped, and eighty ounces of sweet pus removed. The patient had some severe attacks of coughing, and on several occasions became very restless and nervous, complaining of great discomfort beneath the sternum. The flow was usually stopped for a few minutes at such times, and the symptoms quickly passed off. They were doubtless due to the lungs and heart not having had time to adjust themselves to the relief of pressure. One of the advantages of having a small trocar and of as little suction with the aspirator as is sufficient to maintain the flow is that the slower and more gradual removal of the fluid gives the parts more time to adapt themselves to the altering conditions. I have seen paracentesis stopped frequently by coughing, pain, or other distress, though the paracentesis might have been continued had the removal of fluid been less rapid.

No more suction was employed than was just enough to keep the fluid flowing into the bottle. The aspirator is dangerous implement in paracentesis thoracis, and especially dangerous in that very affection for which it is most em.

ployed, viz., empyema. The lung is often found post-mortem in such cases to be studded with soft spots where the tissue is infiltrated, and this and all which softens would have probably occurred if the empyema had been left to make its own way out. If the aspirator be used with the idea not only of removing the fluid but of helping to expand the lung and it be exhausted more or less completely, the risk of causing one or other of these soft spots to rupture is very great, and I have seen it produced more than once. It is sometimes impossible to avoid this even with all care, and I have had the accident happen to myself in spite of all the precaution I employed. An aspirator is necessary for these cases, for without it the pus will often not flow. Still, the bottle should never be exhausted completely before inserting the needle and the fluid removed rapidly—but only sufficiently exhausted to cause the fluid to run easily. As soon as anything more than a low negative pressure becomes requisite the operation should be stopped. After the tapping the patient had a little brandy and a few drops of laudanum on the tongue; the brandy was given because he seemed a little faint and exhausted, and the opium to allay the excitement, and keep him from coughing.

He soon after the operation became quite comfortable, slept comfortably that night, and the next day was greatly relieved.

The relief from the paracentesis was in this case only temporary, and a fortnight later the side was laid freely open and drained. Recovery was complete.

Tuberculosis as an Infective Disease.

By A. A. KANTHACK, M.D.

LAST year we considered the general meaning of infection, contagion, and predisposition: to-night I shall consider the same subject in a more concrete form, using Tuberculosis as an example of infective disease. The highest form of treatment in medicine is undoubtedly that whose aim it is to prevent disease, though perhaps this kind, benevolent treatment is, or promises to be, less remunerative to the practising physician. But you may rest assured and continue your studies; the golden age when all diseases have been prevented is not so near. "Prevention is better than cure" is so old a dictum that we have come to accept its truth, and the science and art of medicine is to prevent as much as to cure. In the prevention of infective diseases we are naturally assisted by the State and Society; for an infective disease is essentially a social disease, at least, it is so in most cases. It is on this account that as soon as a disease has been pronounced to be infective, the question is at once raised, How can we protect society from this disease? Tuberculosis has long since been recognised as an infective disease, but this knowledge has only gradually become general property. Now that it is acknowledged on all sides, loud cries are raised to propose measures to protect the community from the infection. The measures generally proposed are segregation, isolation, reform in marriage laws, and similar revolutionary methods, in addition to others, milder and more acceptable ones. Reforms, such as these, are said to be the logical outcome of the fact that Tuberculosis is an infective disease. I intend briefly to consider to-night what this statement implies and what preventive measures it suggests.

Shortly, by an infective disease, we mean a disease produced by a specific micro-organism, which, in this case, is the bacillus of tuberculosis. Villemin, in 1865, showed that, by means of inoculation of tuberculous material, tuberculosis is produced in animals. I need not allude to the work of Cohnheim, Salomonsen, and Baumgarten, who repeated and extended Villemin's original experiments. It was not

until Koch appeared with his tubercle bacillus that the infective nature of tuberculosis was actually demonstrated and proved. All previous work rendered it probable, but that did not amount to a conclusive proof—in fact, so little, that at the time of Koch's discovery most pathologists and physicians refused to accept the infective theory. Koch's discovery came as a surprise, and established the true nature of tuberculosis, and nobody, nowadays, in his senses, doubts that this disease is an infective process.

Koch showed, by means of most patient and ingenious researches, that his bacillus is the only and true cause of Tuberculosis. We cannot but speak with admiration of the man and his discovery, and do so all the more gladly since recently it has become the fashion to detract from Koch's fame and the greatness of his work. He has erred, but under what circumstances? He promised more than he could fulfil. But is that sufficient reason to forget in the twinkling of an eye the magnificent work the man has done, and to scorn him as a charlatan? This is the way of the "*hoi polloi*," but it is unjust. In spite of his errors he has done enough sound work to make a number of F.R.S.'s. Koch held his illustrious Berlin audience spell-bound when, in modest words and demeanour, he related his results to them, and his work was complete in its conclusions and proofs—no mere preliminary communication which often enough is not followed by the fuller communication. He worked for years and did not submit his results to the criticism of the world until they were unassailable. Let me give you an idea what this meant. Remember that bacteriological methods were very incomplete, and that Koch had to, and did, discover his methods as he went on, and that those methods are practically the methods in use at the present day. This in itself would have been sufficient to establish his fame and reputation.

Koch, to begin with, succeeded by means of a special staining reaction to show the existence of a particular bacillus in the most varying tubercular affections. He examined for, and found, tubercle bacilli in nineteen cases of miliary tuberculosis, twenty-nine cases of phthisis pulmonalis, twenty-one cases of strumous glands, thirteen cases of pulpy joints, ten cases of tubercular bone disease, four cases of lupus, several cases of tubercular ulceration of the tongue, tuberculosis of kidney, uterus and testicle, &c., seventeen cases of perlsucht in cattle, and a large number of animals artificially inoculated (two hundred and seventy-three guinea-pigs, one hundred and five rabbits, forty-four field-mice, twenty-eight white mice, nineteen rats, thirteen cats, many dogs, hares, pigeons, &c.). At the same time he examined innumerable sputa and organs of patients suffering from non-tubercular disease, and in all these cases the typical bacilli were absent.

Koch succeeded to grow the bacilli on blood serum only at 38°, but it is well known that they will grow also on many other media, as we shall show later. As a matter of fact, in our laboratories we invariably grow them on glycerine agar or glycerine broth.

With these cultures Koch inoculated various animals and reproduced typical tuberculosis in them. For purposes of control, he inoculated many animals with tubercular tissues (miliary nodules, phthisical sputum, pus from tubercular abscesses, pulpy masses from joints, scrofulous glands, lupus, &c.), using for these experiments one hundred and seventy-nine guinea-pigs, thirty-five rabbits and many other animals. In all cases tuberculosis resulted. The pure cultures injected into or inhaled by animals, of which he used large numbers, also produced tuberculosis.

Koch, therefore, proved the infective nature of tuberculosis by showing:—

- (1.) That in all cases of tubercle, the tubercle bacillus is found.
- (2.) That it is not found in any other affection.
- (3.) That it may be cultivated for generations for unlimited time.
- (4.) That pure cultures inoculated into animals will produce tuberculosis, and
- (5.) That from the diseased parts of the inoculated animals the same bacilli can be separated.

The tubercle bacillus has thus been found in all tubercular processes, whether microscopically or by means of cultivation, and this bacillus, whatever tubercular lesion derived from, will produce tuberculosis in a susceptible animal. As it is not found in any other disease, its specificity is also established.

Tuberculosis then is an infective disease.

When bacteriology was younger than she is now, infection and contagion were understood to be more or less synonymous terms. I told you last year that they are not, and bacteriologists, deserving of the name, have recognised this long ago. The ordinary mind, however, has just reached that level which bacteriologists occupied years ago, and sees no difference between contagion and infection, nor difference in degrees of contagiousness.

The infective nature of tuberculosis being now fully recognised, the tubercle bacillus having found admission into the plots of harrowing novels and the jokes of *Punch*, a crusade is made against the spread of tuberculosis through contagion. It is silently supposed that all fresh

cases are due to contagion from man or through man, and therefore segregation and isolation and interdiction of marriage are some of the reforms proposed. All cases of tuberculosis occurring in man and wife, brothers and sisters, in hospital wards, are considered evidence of the contagiousness of the disease. We are told of phthisical men communicating the disease wherever they go. This is all the exaggeration of an ignorant or unbalanced mind. As Baumgarten says, "if tuberculosis or phthisis were contagious to such a degree as is calculated from modern statistics, and if we were to believe all the extraordinary cases, then it would not have required the work of Koch and others to establish the infective nature of tuberculosis."

From laboratory experiences it would seem that the growth of the tubercle bacilli depends on such special conditions of soil and temperature that an ectogenous vegetation is excluded, and until recently they were considered true *obligatory parasites*, that is, organisms which can only thrive on living tissues. Hence, germs found outside the animal organism must have been directly derived from the latter. Recently, however, several important papers have appeared which tend to show that the bacillus of tuberculosis is much less parasitic than is generally assumed. Thus Sander succeeded to grow it on ordinary potatoes and their juices, on boiled macaroni, baked bread and ordinary tap water, and it seems that the bacillus is less sensitive to changes of temperature than is usually taught. We have much to learn yet as to the natural mode of growth, but we cannot shut our eyes on such experiments as those of Sander, which show that the bacillus is capable of a saprophytic existence within certain limits. How wide or how narrow these limits are we cannot as yet foresee. It is quite possible that in a few years we must classify the tubercle bacilli among the saprophytes, *i.e.*, organisms capable of leading an ectogenous existence on matter not derived from the animal organism.

But without assuming more than we actually know, there is no doubt that the tubercle bacilli are capable of leaving the animal body and remaining dormant for a long time in the full possession of their infective and germinative properties. Dried they retain their virulence for months, boiling does not always destroy them, nor does putrefaction. The bacillus resists the digestive action of the gastro-intestinal secretions. We are therefore almost forced to assume that the tubercle bacilli are capable of forming resistant spores, or that the organism itself is extremely resistant. If this is so, then we are, broadly speaking, in towns at least, almost everywhere surrounded by infective material.

It follows from this that our surroundings are highly contaminated with virulent tuberculous matter, resistant bacilli or their spores, and hence infection is possible in two ways: (a) from the diseased directly, (b) from objects in the immediate vicinity of an affected person or far removed in time or space from such person. How widely diffused the bacilli or their spores are becomes evident from Marpmann's work. The latter succeeded in growing tubercle bacilli from the dust of much frequented streets of Leipzig in 85 per cent. of numerous experiments.

Undoubtedly the chief source of the materies noxia is the sputum. One-seventh of the whole population die of phthisis pulmonalis. These recklessly or from ignorance, or unwittingly, dispose of their sputum in the most liberal manner, and keep up the extent of the source of infection.

It has been proposed, as I said at the beginning, to remove the source of infection by isolation and segregation. Even supposing we had a right to do so, would it be logical to do so? Certainly not; for:

(1.) If we could isolate all the people known to have phthisis at a moment's notice, our surroundings would be full of infectious matter, and a certain number of predisposed persons would acquire the disease.

(2.) The latter would at first roam about unsuspected of phthisis and keep up the ectanthropic source of infection.

(3.) If we were suddenly to isolate phthisical persons, a large number would escape in whom the disease is not advanced enough to allow of a diagnosis, and these would assist the others in keeping up the source of infection. For phthisis is an extremely chronic disease, and not easily diagnosed in its early stage, and often what we diagnose incipient phthisis is a considerably advanced lesion.

At present, then, isolation and segregation seem to me likely to be followed by so little success as to render them unjustifiable.

But we have to consider another question, to which I have repeatedly drawn attention. Isolation and segregation are the measures to be taken for the prevention of diseases which are obligatory contagious affections, *i.e.*, which are due to true and obligatory parasites. The less parasitic or the more saprophytic the organisms causing a disease, or the greater their resistance outside the human body is, the less powerful isolation must be in the stamping out of an infective disease. Now the parasitic nature of the tubercle bacillus has been much overrated, as we have already shown, and it is extremely resistant. If the bacillus were short-lived, segregation might successfully lead to a disappearance of the disease.

Again, the fact that tuberculosis is a common affection in animals, increases the possibility of ectanthropic infection. We might, perhaps, fight against an infection through animals whose meat is used as an article of consumption. There are, however, also hens and other birds which are extremely liable to the disease. Now it was at one time thought that the tuberculosis in birds is of a different nature, and could not be transmitted to mammals, and that hens could not prove a source of infection. But through the researches of Fischel, Hüppe, Kruse and others we are forced to give up this belief. Now as hens may remain unsuspected for a long time, and their feces and eggs contain the bacilli, they may be responsible for a wide supply of the contagium vivum.

These considerations *per se* show how little benefit would accrue to the community from the isolation of persons or animals known to have tuberculosis. There is, however, another point to be considered, *viz.*, the existence of a *predisposition*. On this point also I have already spoken to you last year, and I may therefore be excused from entering into this matter at length:—

Disposition.—If we inoculate rabbits or guinea-pigs with minute pieces of tubercular tissue, tuberculosis results. The bacilli immediately multiply and proliferate, and are carried away to distant parts and there set up fresh foci of infection. Such experiments cannot be immediately applied to all species of animals. The successful tuberculous infection depends on the animal organism, not to speak of other conditions. Many animals are relatively, if not absolutely, refractory. True, an animal of great resistance may be infected if we inject enormous quantities of living bacilli into the same, and in this sense an absolute immunity does not exist. But such experiments are coarse and rough, and not at all comparable to ordinary modes of infection, and we must allow that there are some species of animals, as, *e.g.*, dogs and white rats, which, to all intents and purposes, are immune. When we have to deal with a species which is readily susceptible to tuberculosis, as, *e.g.*, rabbits or guinea-pigs, it does not matter whether the individual is old or young, weak or robust, large or small—it does not matter whether we use much or little tubercular inoculation material, virulent or attenuated bacilli. The animals die, more or less, after the same interval. Matters are, however, very different in insusceptible animals: to infect them we require enormous quantities of bacilli, age is of some influence, and the conditions of the tissue affect the susceptibility considerably. I cannot, therefore, allow, when Baumgarten says that the susceptibility of the species is of subordinate importance—it is of the utmost importance, and the more we study the process of immunity the more we shall realise it. Last year I gave you many instances of how we may destroy the immunity of an animal, and render more or less insusceptible animals highly susceptible. No one who has made a special study of immunity will agree with Baumgarten that the species disposition is of quite subordinate importance. All those who wish to prove, by hook or by crook, that tuberculosis is dangerously contagious to a normal community will readily accept all he says. But we must take facts as they are.

I must also disagree with the statement of Baumgarten that man is one of the most susceptible animals, because he suffers more than other animals from spontaneous tuberculosis. This is an argument which we cannot admit, because animals live an entirely different life, and how are we to compare the vital statistics of man and animals? Such a dictum as that of Baumgarten's could only be settled by experiment. My own idea is that a normal, healthy man, living under sound conditions and without a hereditary taint, is a comparatively insusceptible animal. Were man as highly susceptible as Baumgarten assumes, the incidence of tuberculosis in our towns should be much greater than it is, and hereditary tendencies should be of no importance. Baumgarten is consistent, and denies the existence of such predisposition. We have, however, better proof of the existence of an acquired predisposition, *viz.*, the good results of improved hygiene both in England and on the Continent. Without segregation and isolation the disease has declined considerably during the last thirty years. Speaking without statistics, I do not think that the amount of phthisis amongst practitioners, physicians, bacteriologists, and butchers—all persons much exposed to the dangers of infection—is greater than among other people less exposed. So far as I can see, it must be acknowledged that there is something besides the bacillus and the individual which is required before an infection results. Our most experienced physicians and most distinguished pathologists allow this, and until the days of bacteriology this has not been doubted, and the ultra-contagionistic theory has only arisen since the day of Koch's discovery.

Moreover, we possess distinct experimental evidence that the insusceptibility of animals against tuberculosis may be considerably diminished and lowered, and such evidence is of more importance than impressions and deductions. Salsano and Fermi have shown that white mice may be rendered highly susceptible by means of subcutaneous injection of lactic acid, or by being placed in an incubator at a temperature of 38°C. Again, animals may be rendered susceptible towards

avian tuberculosis in various ways. Are we to neglect all such evidence? And if it be true, as it seems to be, that there is no distinct boundary line between avian and mammalian tuberculosis, the question of predisposition becomes all the more important.

Therefore I entirely agree with Flüge that the predisposition in the case of tuberculosis, plays an important part and governs the amount and mode of diffusion of the disease. In man we have marked differences in racial as well as individual predisposition. Allow me here to quote a few lines from Flüge: "The most incontestable influence of an individual predisposition do we find in tuberculosis. The greater or lesser accumulation of resistant infection carriers in the surroundings, as we know from every-day experience, is of comparatively subordinate importance in regard to the spread of the disease."

I cannot enter more fully into this matter, and I must ask you to agree with me as to the rôle played by a specific, general, and individual disposition in the acquisition of tuberculosis. Except on the strength of arguments based on the principles of a *petitio principii*, I see no reason for disbelieving its existence.

That sanitary conditions are of great importance in the etiology of tuberculosis may be shown by the following considerations. The mortality of phthisis decreases considerably with the altitude. This observation has been confirmed for Persia, India, the Andes, and other altitudes. As we ascend we find a gradual diminution of phthisis, and not a sudden immunity. This is important, because it shows that the decrease of tuberculosis is not due to the height itself, but to conditions of the hill population, its density, prosperity, &c. We find, for instance, that in densely populated towns like Bern and Munich, situated on bare plateaux, there is practically no diminution in the mortality from phthisis. At a height of 6,000 feet there is a comparative absence of phthisis, less dependent on vital conditions, more or less true immunity (as, for instance, in Mexico, Puebla, Quito). This immunity is no doubt due to a steady climate and lower summer temperature, which exert their influence on the tissues and nutrition of the body.

The fact that the phthisis mortality is greater during the winter months is in part explained by the circumstance, that during winter the vital and hygienic conditions of the poorer classes are low and most unfavourable, and this is yet another confirmation of the etiological importance of sanitary and hygienic surroundings.

Preventive Measures.—We see then that when we begin to direct our attention towards the prevention of tuberculosis, we must start with a full appreciation of all the facts as they are found. For a diffusion of the disease we require the following elements:—(1) the tubercle bacilli, (2) a predisposition. Now to prevent the affection we may evidently attack either the bacilli or the predisposition, or both.

The bacilli are widely distributed in our towns and largely populated areas, how widely Marpmann has recently shown; moreover, they are more saprophytic than has hitherto been assumed, and they are also able to adapt themselves to changes of surroundings, so that the narrow and exclusive distinctions between avian and mammalian tuberculosis are gradually disappearing. Again from the chronicity and difficulty of early diagnosis, it follows that the supply of bacilli is constantly kept up. It would be of no avail to segregate tubercular individuals as soon as the disease becomes pronounced and capable of diagnosis. Such interference with the public and personal liberty could only be justifiable where its good results are unquestionable. I go so far as to say that compulsory segregation *per se* would not diminish the amount of phthisis, so long as we are not able at the same time to eradicate all ectanthropic sources of infection or to abolish the predisposition.

The complete removal of the ectanthropic sources of infection is and must be an impossibility so long as there are predisposed individuals about. The physician attacks the predisposition. He either removes the predisposed individual from any possible risk of infection by sending him to climates where there is no tuberculosis, or sends his patient away to lessen and destroy the predisposition. The many good results which may be cited of cure and prevention of phthisis in people who were sent away in good time is yet further proof of the undoubted existence of such predisposition. If this were of such subordinate importance as Baumgarten wishes us to believe, then phthisis once developed or threatened should always be fatal. We know of cures in persons sent to such places as San Remo, which are always frequented by consumptives, and where, therefore, the presence of tubercle bacilli is a certainty. In such cases, by strengthening the organism and thus lessening the predisposition, the tubercular process becomes localised, in the same way as an accidental inoculation in an unpredisposed individual leads to a local tuberculosis only, and not to a generalized disease. I am, therefore, in favour of an isolation of the predisposed, as he only is liable to infection, and as by isolating him we may either keep the bacilli from him or lessen his predisposition in such a manner that bacilli which find access to his body cannot do him any harm.

Unfortunately, we can but rarely attack the individual predisposition in this manner, because our patients are not always rich enough to allow

themselves the advantages or disadvantages of a permanent or temporary residence in other regions. We must therefore attack the racial predisposition and strive to strengthen the health of the community in such a manner as to render it more immune. This, as is shown by our vital statistics, can be done by improved hygiene. I must refer you to an excellent paper by Dina Sandberg, who shows from English statistics what good the Factory Acts have done in this direction. I need not explain what improved hygiene means—I may leave that to your own imagination. I will only remind you that besides ventilation, open spaces, avoidance of overcrowding, it also implies disinfection. Such improvements in hygiene cannot be made at a moment's notice—they require generations. They are in actual progress, and Dr. Collins no doubt has told you how much the respected County Council do in this direction by sanitation and the unavoidable lecturer. We must judge of things by their results, for "by their fruits you shall know them." The fruits of improved hygiene have brought about a marked decrease in our phthisis mortality.

This general improvement of hygienic conditions must be accompanied by strict disinfection. There is first the supervision of food, a matter greatly neglected in England. How differently do they manage this matter on the Continent! We should copy the Prussian system of Central Slaughter-houses, with a trustworthy staff of inspectors. Generally speaking, tubercular meat should be condemned, as undoubtedly there is some danger in introducing tubercle bacilli into the kitchen. Anyhow, the supervision should be much stricter than it is. Although I am ignorant of the results and the experiments of the Tuberculosis Commission, I should be in favour of condemning any tubercular animal. It is more consistent, and therefore more easily carried out. A particular part of an animal may be free from bacilli, but while cutting up the animal the butcher may contaminate the meat and thus bacilli are introduced in the kitchen. Complete destruction of any tubercular carcass would be the ideal procedure, and this should be the standard aimed at, though it may be permissible to relax the stringency of this rule on grounds of economy and expediency. In preventive medicine we must, however, first recommend the ideal method, and afterwards, guided by common sense, order and prescribe what is practicable. We may, however, say with safety that no contaminated food should be brought into the kitchen. The danger of such an act becomes more evident from Sander's work, who showed how saprophytic the tubercle bacilli are, at incubator temperature, when they grow well and copiously on all kinds of vegetable media, unprepared in any way, or in a state fit for human consumption.

The greatest attention should be paid to milk, as thereby children especially may easily be infected. Milk should be sterilised by heat. De Man has carefully studied the effect of high temperatures on the tubercle bacilli in a manner free from all objections, and found that the bacilli in tuberculous milk are destroyed at 55°C. after 4 hours, at 60°C. after 1 hour, at 65°C. after ½ hour, at 70°C. after 10 minutes, at 80°C. after 5 minutes, at 90°C. after 2 minutes, and at 100°C. after 1 minute. He recommends that such temperatures be used as are capable of killing the bacilli without rendering the taste of milk disagreeable, i.e., 60°-70°C. Heating milk at 70°C. for 10 minutes does not affect its taste. Pasteurised milk offered for sale has often been insufficiently heated, and is therefore unsafe. It is therefore better and more advisable to use sterilised milk, heating it at 70°C. for 10 minutes, but, in doing so, we must be careful that the temperature of the milk and not merely that of the water-bath is actually 70°C., if we make use of the latter in our process of sterilisation.

The greatest attention possible should be paid to the disinfection of tubercular excreta, such as sputum, pus, &c. Sputa especially must be disinfected with carbolic acid (1:20). Sublimate is of no use in this respect, as has been shown experimentally. The sputa should be liberally mixed with the solution of carbolic acid, and the latter allowed to act for some time. If sputum be limpid and thin, solid or liquefied carbolic acid may be added so as to make the liquid expectoration up to a solution of carbolic acid 1:20. It is best to keep the antiseptic in solution in the spittoons, so that the patients expectorate into the germicidal substance. Antiseptics are not carried sufficiently far in medical wards. Surgeons have become fully alive to the importance of antiseptics and asepsis, but the physician is still behind-hand. The spittoons are almost invariably used beautifully cleaned, containing no antiseptic. No spittoon in house or hospital should be used without containing an antiseptic, preferably carbolic acid. I have often seen an enthusiast or careful worker prepare his cover-glasses for staining tubercle bacilli with undisinfected sputum. Some material easily, and unknown to him, gets on his fingers, and he forgets to disinfect his hands, and now proves a source of infection. Carbolic acid does by no means interfere with our tinctorial diagnosis of any germ, but on the contrary, facilitates it. Sputum kept in carbolic acid should be spread on cover-glasses and rubbed between them into a uniform film, dried in the ordinary way and then dipped into chloroform, and is then ready for the ordinary staining method with carbol-fuchsin, hydrochloric acid, 70 per cent. alcohol and methylene blue. The advantages

of this method, which I invariably use, are (1) the bacilli are dead and there is no risk of infection, (2) they stain better, and (3) are stained in larger numbers, so that the diagnosis is more certain. I wish I could induce physicians to adopt this method generally for their and their patients' sake, and also for my own sake. I have sometimes had sputum containing tubercle bacilli in large numbers sent to me in gutta-percha tissue, tied with a feeble string, leaking, or in badly sealed bottles, dripping with nauseating purulent expectoration, or even dried, or partially dried, on ordinary newspaper. In this manner it was sent by letter post: an almost criminal procedure. Had it been sent in carbolic acid, there could not have been any danger, and the specimen would in all respects have been a better and cleaner one. I have no doubt that in workhouse infirmaries many bedridden people acquire phthisis on account of the deplorable state of the antiseptic arrangements. I am looking forward to the time when our medical wards will become as aseptic as our surgical wards wish to be.

Since in the majority of cases the bacilli find access into the human organism by way of the lungs, through inhalation of air impregnated with sputum elements, it is our duty to educate phthisical patients to be more careful with their method of expectoration. There is practically no fear of infection by means of fresh moist sputum, and the expired air of consumptives is free from bacilli, and contains them only if the patient should cough at the same time and bring up matter from the diseased lungs or bronchi. But expectorated sputum dries up, is converted into dust, and as such becomes mixed with the air, and thus renders the latter a serious source of infection. Consumptives of the lower classes expectorate on the floor or ground, and thus contribute to a dissemination of the contagium. Consumptives of more refined taste expectorate into their handkerchief. The former method is more disgusting but actually less dangerous, for the sputum quickly dries up on the handkerchief and every time the handkerchief is pulled out a cloud of infective material is dispersed in the best possible condition to cause an infection. The pocket handkerchief is also commonly used by bedridden consumptives and placed under the pillow. All these are habits of expectoration which must be discontinued, and the consumptives should be taught their duty to society at large. This may be done by the physician in his private practice, or in the out-patient room or dispensary, or by any other method. Spitting on floors or in the street is a low and reckless habit, and people somehow or other should be made to recognise the lowliness and possible danger of it.

In public buildings, post-offices, factories, railway stations, &c., there should be spittoons, and these filled with carbolic acid so as to prevent drying up of the sputum, and it should be pointed out to people who indulge in such habits that the floor is not the receptacle for their expectorations. Also in all out-patient rooms spittoons should be placed, and a culprit at once corrected. Notices also might be put up, for some good no doubt may come from it. In short, in all places where numbers of people are likely to collect, or which are likely to be used by numbers, spittoons or other receptacles should be placed. Spitting in railway carriages and other public conveyances, public-houses or bars, should be prohibited.

The proper method of expectoration cannot be taught to a mass of uneducated or highly refined people who use their handkerchiefs in a week or a year, it will require a long course of teaching, and the hospitals or dispensaries are the best schools.

Consumptives may be advised to carry on their person pocket spittoons, such as are used in Germany. Certainly in the house they should use spittoons, and if they cannot go about without expectorating on floors and pavements they had better remain at home or take the trouble of carrying a spittoon about. In any case they must be prevented from still further distributing the infection carriers. If people only recognised their duty, the person who actually, though undiagnosed and unknown to himself, suffers from phthisis would be a less dangerous infection carrier.

An education in manners is of much greater use than all the heroic measures of segregation which have been recommended, and if we are ever to resort to the latter, it cannot be until we are so perfected as to know what to do with our expectoration.

If disinfection be carefully applied in these directions, I doubt not that the diffusion of the tubercle bacilli would become considerably lessened. Disinfection, however, should be especially applied in our houses. The presence of a consumptive in a house renders the latter a dangerous source of infection, unless the risks are recognised and averted by the use of disinfectants. Besides the sputum, the patient's linen, clothing, &c., should be rendered harmless. The room in which he lies, if he be bedridden, should be constantly kept clean, and the dispersion of dust from the floor or bed prevented. How all this is done must be left to the common sense of the residents and their medical attendant. After the patient's removal or death, the room especially, and the rest of the house, should be carefully disinfected, so as to remove all the bacillary remains. This disinfection must be thorough, no SO_2 and similar more or less odorous methods, but radical

treatment of the walls and floors with antiseptics. The less careful the consumptive has been, the more carefully the disinfection must be performed. It might be advisable that every death from phthisis be notified to the sanitary authorities, and that these should superintend the proper disinfection. I see, however, no necessity of notifying actual cases of phthisis with a view to isolation, for the room air is free from bacilli, unless the patient has been reckless with his sputum, and by expectorating on the floor, in his handkerchief, or against the walls, by no means an uncommon habit, has impregnated the air. Rooms which phthisical persons have inhabited must be stripped of their carpets, the furniture should not be cushioned, and the curtains such as may be easily cleaned.

Phthisical persons must by law be prevented from selling food, and people in an advanced state of phthisis should be declared unfit for work and excluded from work in factories amongst healthy persons, since their presence is a risk, because these consumptives, as a rule, are reckless with their expectoration, the atmosphere in which they work dry and loaded with dust. These are, more or less, indications as to how we may keep the ectanthropic sources of infection in abeyance. Time will not permit me to allude to all the possible methods or rules which will act in this direction. I must leave that to your own common sense.

But I do not doubt that if all this be done, besides attending to the public health, tuberculosis will diminish more rapidly than it already does. However, without all these measures, it is absurd to think of segregation and extinction of the diseased. This, to my mind, is so evident that I do not attempt to defend this statement.

I shall also omit the question of hereditary predisposition. I may, with your permission, discuss this more fully at a future meeting of the Society. Closely connected with hereditary predisposition is marriage among or with tubercular individuals. I gladly leave this subject out of consideration to-night, as it involves many serious social, ethical, and scientific questions, and cannot be discussed in full at the end of a paper already long enough for your patience. Ideally, from an evolutionary point of view perhaps, phthisical people should be persuaded not to marry, but, as you know, marriage does not study evolution, and Ferdinand does not see bacilli on the lips of his Miranda. Moreover, evolution is an unconscious process, and must be left to work for itself. The question of marriage, to my mind, must be left for its decision to the moral standard and principles of those whom it principally concerns. I do not see how the State can interfere in a matter, the result of which cannot be deduced with mathematical accuracy and varies with circumstances. However, we have no right, whoever or whatever we are, to hint that an individual knowing that he is phthisical, or suspecting that he may become so, is acting immorally, because he marries.

Reviewing shortly what we have said, we find that tuberculosis is an infective disease, due to the bacillus tuberculosis, first separated by Koch, that it is both directly and chiefly indirectly contagious, and that for the acquisition of phthisis the social or individual predisposition is a factor of great moment. We have seen that under existing conditions the contagium in our large towns and factory districts must be widely distributed, and that segregation would not cause an appreciable decrease of the sources of infection until a true and strict system of disinfection is carried through and becomes a natural habit of the population.

The preventive measures to be adopted then are, (1) improvement of social and personal hygienic conditions, and (2) careful disinfection wherever possible and necessary. One must assist the other, and when these two measures have been conscientiously carried out for generations, tuberculosis is certain to disappear more rapidly. Absolute segregation is impossible, chiefly on account of the chronicity of the disease and difficulty of recognising early cases, and, if not absolute, is useless and therefore unjustifiable.

Within recent time an attempt has been made to counteract the individual disposition or susceptibility by means of tuberculin inoculation. No doubt this is a point bacteriology must aim at, but unfortunately Koch's brilliant animal experiments led only to disappointment when tried on man. Undoubtedly it is possible not only to immunise, but also to cure, guinea-pigs already suffering from tuberculosis by means of hypodermic injections of tuberculin, and in some cases the tuberculin treatment has certainly done good. I belong to those who believe that we have not heard the last of tuberculin, and think that it might with advantage be used to counteract a suspected predisposition, because it is much easier to immunise than to cure. It might be of benefit in the offspring of tubercular parents, and I should not hesitate to recommend it as an immunising agent in such cases. This is a point which might be settled by experiment, but even in the absence of experiment it would be justifiable to adopt such preventive treatment, which, as long as it is done *secundum artem*, is harmless, and promises to lead to good results.

In conclusion I may point out that I have placed under the micro-


scopes specimens to illustrate the tubercle bacillus in sputum and in tissues. The sputum has been preserved in carbolio acid for over a year. You find the bacilli stained red in one specimen and blue in the other, to convince you that they are not naturally red or blue.

Under another microscope you will find a giant cell from bovine tuberculosis containing a large number of bacilli stained red and arranged peripherally, while the last specimen is one of experimental tuberculosis produced in a rabbit, the tissue being liver and crowded with bacilli. The bacilli are slender rods, as a rule slightly curved. In the stained bacilli we often notice two to six bright unstained points or dots, which by some are considered to be spores, but almost certainly are not, for, according to De Bary, a bacillus never forms more than one spore. A giant cell may contain one to almost numberless bacilli, and often the bacilli are found at the pole opposite to the nuclei. The giant cell is often caseous in its central parts, and may be free from bacilli.

In a test tube I am showing a pure culture of the tubercle bacillus grown on glycerine agar. As I told you, it grows comparatively slowly, but when fully developed after some weeks, forms a more or less uniform thick white layer, which subsequently acquires a yellowish tint.

Gentlemen, I feel that on account of lack of time and leisure I have not been able to be so systematic or clear as I might have wished. I may confess to you that this paper had to be written under great difficulties at odd moments, and I hope that you will forgive me if I have come before you to-night feeling conscious of not offering you as much as under more favourable conditions I should have done. I hope, however, that I have succeeded in convincing you of the uselessness at the present time of such drastic measures as segregation and isolation while the ordinary principles of disinfection are yet utterly ignored. Towards the latter, and a general improvement of hygienic conditions in their widest sense, I look as means of keeping tuberculosis or phthisis in abeyance.

The Abernethian Society.

N November 23rd, Mr. Attlee showed a case of epicanthus. Mr. Reginald Brown, President of the Society, then read his paper on "The Exigencies of Private Practice." Private practice, he thought, was the goal at which most members present were probably aiming, and therefore he did not think it amiss that he should narrate some of his experiences in order that members might benefit by them. In his opinion, there can be no ideal practitioner; each patient builds his or her own ideal, which usually corresponds to the description of his or her own medical man, and hence Mr. Brown recommends members to perfect themselves as far as possible, not merely for their own sakes, but that they may uphold the honour and dignity of the profession. Perhaps one of the least agreeable, though most essential, procedures through which a medical man must pass when first he turns his thoughts to private practice is, Mr. Brown considers, that which is technically known as being introduced. Some may receive the would-be practitioner with apparent kindness—though, should they be ill, they will probably send for his partner; others will receive him with unmistakable rudeness, whilst all will certainly criticise him severely, and will not fail to remark upon his extreme youth, and to point out any physical and moral defect which they think they may have detected in "the young doctor." All this, Mr. Brown remarks, may be extremely mortifying to one's feelings, but it should be borne in a good-tempered manner, and the value of first impressions should never be forgotten.

To succeed in practice, it is a *sine qua non* that the practitioner should gain the confidence of his patients, and, to

do this, Mr. Brown thinks that one should be confident in oneself. He recommends that all patients, whether they be hospital patients, or private patients of the poorer class, of patients among the more well-to-do, should always be treated with the greatest kindness and sympathy, and every trouble should be taken in arriving at a diagnosis, and every care and consideration taken in the treatment. He has found that the class of patients who treat themselves is a very lucrative one from the point of view of the medical man. He considers that the fee should depend on the financial circumstances in which the patient is placed.

On November 30th Dr. Ormerod read his paper on "Post-febrile Paralysis." He first stated that, in addition to the ordinary post-febrile paralyses, he was about to include in his paper the subject of paralysis occurring during the actual course of a fever, and then classified paralyses dependent upon the febrile condition into the two principal heads: I. the indirect, where the paralysis is brought about through the intervention of organs and tissues other than the nervous system; and II. the direct, in which the paralysis is directly dependent upon the febrile condition. Of the former he quoted, as examples, hemiplegia caused by cerebral embolism from endocarditis due to rheumatic fever, and facial paralysis after middle ear disease, following scarlet fever. Paralysis of this class, he said, were due to local, not diffuse, nervous lesions, and the interval at which they might follow the fever was quite indefinite.

The direct febrile paralyses he subdivided into (1) those which followed the fever; and (2) those which occurred during the height of the fever. Of the former he cited diphtheritic paralysis as a type, and stated that the bulk of observation, from the point of view of morbid anatomy, indicated a neuritis—probably toxic in origin—as an explanation of this form of paralysis, though it seemed reasonable to suppose that the morbid process might subsequently spread to the spinal ganglia. He pointed out also that, though the paralysis of the soft palate suggested a purely local effect, the loss of the knee-jerks and the paralysis of the ciliary muscle at an early stage in the disease, together with Charcot's observation that the nerve-endings in the palate are degenerated, showed that there was something more than a mere local paralysis.

Direct febrile paralyses, which occur during the height of a fever, were divided into (a) the diffuse, and (b) the local, both of which might possibly be due to a specific febrile inflammation of the nerve-centres. As examples of the diffuse variety, Dr. Ormerod quoted epidemic cerebro-spinal meningitis, cases known as "acute ataxia" or "false disseminated sclerosis," and one case of disseminated myelites which began on the ninth day of a by no means severe attack of measles.

The local varieties—which included hemiplegia, aphasia, possibly anterior polio-myelites, one interesting case of transverse myelites, following typhoid, which is described by Dr. Shore in the hospital reports (Vol. xxiii.), ulnar

paralysis, &c., were due to blocking of vessels, localised inflammation, selective action of after processes, malnutrition seizing on some *locus minoris resistentie*, and, in some instances, to simple pressure effects.

On December 7th, Dr. Kanthack read a paper on "Tuberculosis as an Infective Disease," and on December 14th Mr. Berry read a paper on "Goitre: its Varieties and Pathology." As both are to appear in print we refrain from making an abstract of either.

St. Bartholomew's Hospital Musical Society.

THE ROYAL BRITISH NURSES' ASSOCIATION SIXTH ANNUAL CONVERSAZIONE.

THIS function took place on Thursday, December 7th, 1893, in the Galleries of the Royal Institute of Painters in Water Colours, Princes Hall, Piccadilly.

At the request and by the invitation of the Matron, Miss Stewart, the St. Bartholomew's Hospital Musical Society assisted in entertaining the guests present upon that occasion.

The Orchestral Society contributed three items to the programme by Mozart, Massenet, and Michaels respectively, which were well received, especially the "Scènes Pittoresques" of Massenet. The Choral Society gave a spirited rendering of three glees by Pinsuti, Benedict, and Stewart, their efforts being highly appreciated. In addition, six solos were given by members of the Society: A song, "You ask me why I love" (Lawrence Kellie) by Mr. McHardy, was performed with delicacy and expression, and met with a good reception; Mr. Arthur Haydon played a difficult violin solo, "Scène De Ballet," by De Beriot, in a style which showed a very high degree of executive facility. A violoncello solo, "Spanish Dances" (Popper), by Herr Alfred Gallrein, the fine execution of which was greatly admired, was one of the choicest items in the programme. The Nursing Staff was ably represented by Nurse Duffus, who sang "Comin' thro' the Rye" in excellent style. An oboe solo (a) Pastorale, (b) Bourée (German), by Dr. Austen, met with general approval. Dr. Scholefield was in fine form in his rendering of the "Sands of Dee" by Day, for which he received well-merited applause.

Dr. Dundas Grant, as Conductor of the Society, left nothing to be desired.

ACKNOWLEDGMENTS.—*Guy's Hospital Gazette*; "Principles and Practice of Medicine," by Dr. Norman Moore; Dr. E. Cautley, "Treatment of Infantile Diarrhoea"; Dr. Kanthack, "On Diplococcus Pneumonia," &c.

The Christmas Entertainment.

THE Annual Christmas Entertainment was held in the Great Hall on Thursday and Friday, January 4th and 5th, 1894.

After an overture by the members of the Hospital Musical Society, the curtain rose on Edgar Pemberton's farce, "Freezing a Mother-in-Law." The piece was well played throughout, though occasionally it might have been quickened a little. Of the individual performers mention must particularly be made of Mr. H. L. Brownlow, who, as "Mr. Watmuff," with an excellent make-up, added another to the already long rôle of clever character studies with which he has delighted the audiences at these entertainments. He kept the piece going from beginning to end with untiring energy and humour. We congratulate him on a very artistic performance.

Of the rest we must not omit to mention the "Mrs Watmuff" of Mr. J. G. Powell, whom we gladly welcome as a strong addition to our Dramatic Club. Mr. Clowes as "Ferdinand Swift," Mr. Martin Cooke as "Walter Litherland," and Mr. Herbert as "Emily," each and all deserve praise.

The second piece was H. J. Byron's comedy, "Not Such a Fool as He Looks"; and we may at once say that the manner in which this was staged and acted reflected great credit on all concerned. From beginning to end there was not a dull moment. The second act in particular was played with great taste, and every line made the most of. The hero, "Sir Simon Simple," was played by Mr. Boyan, whose performance throughout was characterised by a quiet attention to detail, and artistic finish, which will compare favourably with anything we have seen of recent years in the Dramatic Company. Of Mr. Valerie as "Mould" we can only say that the part suited him admirably, and he was at his very best. He was ably supported by Mr. Powell as "Mrs. Mould." The other characters were all excellent, but especially Mr. Herbert, whose artistic acting in the second act stamped him as an artist. Mr. Lindsay as "Grantley," Mr. Holmes as "Felicia Craven," Mr. Pawlett as "Captain Marker," Mr. Clowes as "Murgatroyd," all deserve praise. The whole performance went off without the least hitch, and reflected the greatest credit on the Stage Manager, Mr. Emlyn.

The St. Bartholomew's Hospital Musical Society contributed several most acceptable items, the choruses receiving enthusiastic applause. The orchestral element was thoroughly enjoyed, and was a great credit to all taking part in it, the cornet solo in the selection from "Faust" being the object of much admiration.

We wish both branches of the Musical Society every success and continued vitality. Dr. Dundas Grant, the conductor, may feel highly satisfied with the way in which

the Society has performed under his bâton. The following was the programme:—

PART I.

OVERTURE... .. "Caliph of Bagdad" Boieldieu.

"FREEZING A MOTHER-IN-LAW."

A Farce in One Act.

By T. EDGAR PEMBERTON.

Characters:

By the Members of the Hospital Amateur Dramatic Club.

Mr. Watmuff	Mr. H. L. BROWNLOW.
Ferdinand Swift	Mr. F. J. CLOWES.
Walter Litherland	Mr. MARTIN COOKE.
Mrs. Watmuff... ..	Mr. J. G. POWELL.
Emily (<i>Her Daughter</i>)	Mr. G. HERBERT.

Scene—Mr. Watmuff's Study.

PART II.

GLEE ... "In this hour of softened splendour" ... *Pinsuti.*

ORCHESTRA Selection from "Faust" *Riviere.*

GLEES... .. { "The Wreath" *Benedict.*
 { "Bells of St. Michael's Tower" *Rimbault.*

PART III.

OVERTURE "Loin du Bal"... .. Gillet.

"NOT SUCH A FOOL AS HE LOOKS."

An Eccentric Comedy in Three Acts.

By HENRY J. BYRON.

Characters:

By the Members of the Hospital Amateur Dramatic Club.

Mr. Daniel Murgatroyd (*Solicitor and Money-*

<i>Lender</i>)	Mr. F. J. CLOWES.
Frederick Grantley (<i>His Clerk</i>)	Mr. A. W. C. LINDSAY.
Sir Simon Simple, Bart. (<i>His Ward</i>)	Mr. J. BOYAN.
Mr. Mould (<i>His Messenger</i>)	Mr. J. VALERIE.
Captain Marker (<i>His Client</i>)	Mr. E. L. PAWLETT.
Felicia Craven (<i>His Niece</i>)	Mr. B. W. HOLMES.
Mrs. Merton	Mr. G. HERBERT.
Mrs. Mould	Mr. J. C. POWELL.
Servant	Mr. F. V. BICE.

Scene I.—Murgatroyd's Private Office.

Scene II.—Kitchen in Mrs. Mould's House.

Scene III.—Drawing-Room at Mrs. Merton's.

Between the Acts was played

"Canzonetta" Godard.

"Aubade Printanière" Lacombe.

Conductor— Leader—

DR. DUNDAS GRANT. MR. A. G. HAYDON.

Stage Manager— Assistant Stage Manager—

MR. C. W. EMLYN. MR. J. BOYAN.

Acting Manager—MR. F. J. CLOWES.

Extracts from a New Dictionary.

By OUR COMICAL CORRESPONDENT.

(Continued.)

* * * * *

Abscess (Abscedo—I depart). Evidently from this it is a thing which departs. We have lent money to several Abscesses in our time.

* * * * *

Dresser. Students, according to a dresser, are divided into two sections: (1) Those who have passed their Second College; (2) Those who have not. A new dresser

may sometimes be mistaken in the distance for a nobleman, unless you happen to be on the lee side of him, when the odour of Iodoform is of diagnostic value. Should you be to windward of him, this sign is of not much value, but the cotton wool hanging from his hair affords a valuable clue to his identity. What with the surgeons, the house surgeons, and the sisters, they are a down-trodden race and generally die young.

* * * * *

Examiners. There are all sorts and conditions of examiners, and lucky is the student who encounters only the right sort.

Beware of the examiner who smiles at you and pats you on the back, so to speak, and is apparently in an ecstasy of admiration at the amount of knowledge that you are giving away gratuitously. He says, "Yes, ha! very good indeed!!" when you say that you would treat P.P.H. with the wet pack, and you leave his table impressed with the idea that you really do know something after all. We say beware of him—he is a snare.

There is also another gentleman with the expression of a Sphinx, who raps out his questions as if he was repeating the multiplication table, and who to all appearances is not taking the slightest interest in your answers—but beware of the man who is supposed to be marking, but who seems to be apparently drawing puzzles to while away the time, and who looks up at you occasionally as much as to say "Are you there still? I thought you had gone long ago"—keep your eye on him, he is dangerous.

Another type is the ferocious-looking gentleman, who has conscientious ideas upon the subject of examinations. It is his notion that while you have come there with the idea of trying to pass, he is paid for the express purpose of preventing you doing anything of the kind. With this gentleman you can generally tell more or less how you are progressing, by keeping your eye upon his countenance. If he assumes a peculiarly downcast and dejected look, you may infer that you have answered correctly. But should he smile, give it up; don't wait—move on to the next table. It is no use to slip sixpence into his hand on leaving—he is impervious to wealth.

Now for a few more hints. Be modest—don't tell the man all you know on one question. Give him an opening to ask a second question on the same subject.

Don't joke. Examiners don't like jokes—at least not other people's.

If you don't know the answer to a question, say so—don't make shots.

If you can contrive to look ill and overworked, do so. It may excite sympathy. (This is not a very reliable tip.)

Should the examiner make a joke, on no account omit to laugh heartily, and let the smile linger.

Above all, don't forget that there are examiners who would rather that you did well than badly, and who will help you in every legitimate way to a successful issue.

Notes.

MR. J. D. RAWLINGS, M.R.C.S., L.R.C.P., and Mr. H. Crowley Atkinson, M.R.C.S., L.R.C.P., have been appointed Junior Resident Medical Officers (House Physicians) to the Royal Free Hospital, Gray's Inn Road.

It is announced that Dr. Claye Shaw will give a special course of lectures in "Mental Physiology," with practical clinical work in insanity, especially designed for the men working for the M.D. and M.S. of the University of London. The first course will be held during October and November next. These lectures are in addition to the ordinary course on "Mental Diseases" given during the Summer Session.

DR. C. HUBERT ROBERTS, M.B., M.R.C.P., has been appointed Casualty Physician to the Hospital, in place of Dr. Cautley, whose period of office has expired.

J. T. HORDER, B.Sc., has obtained the first place in Honours in Physiology at the final B.Sc., and E. C. Morland, B.Sc., has been awarded a First-Class Honours in Zoology, with marks qualifying for the Scholarship.

THE following have passed in Surgery at the L.S.A. Examination: A. C. C. Harris, C. G. Mathews, W. Wylls. In Medicine, A. P. Woolright has passed.

IN the Pass List in Anatomy and Physiology of the 2nd M.B. Cambridge, we note the names of R. F. Baird, J. Johnston, H. C. T. Langdon, and A. E. Naish.

THE following have passed the 2nd part of the Third M.B. Cantab: C. D. Henry, A. M. Mitchell, C. Neill, L. C. Phillips, H. Pulford, G. C. Taylor.

F. E. A. COLBY, R. Michell, J. H. Pead, and C. Todd have passed the 1st part of the Third M.B. Cambridge.

IN the Honours Lists of the M.B. London Bart's men figure very well. As announced last month, H. O. Davies gained the Scholarship and Gold Medal in Obstetric Medicine, and H. W. Armstead and J. Morrison took first classes with marks qualifying for the Medal. K. Rogers obtained a second class in Obstetrics. H. W. Armstead was awarded also a first class in Medicine. H. O. Davies is head of the second class, J. Morrison gained a second class, and K. Rogers, L. W. Bathurst, and W. N. Soden have each a third class Honours in this subject. In Forensic Medicine T. M. J. Powell is first in the second class, and J. H. Griffiths has obtained a second class Honours.

MR. H. J. WARING has passed the examination for the M.S. of the University of London and gained the number of marks to qualify for the Gold Medal. Another Bart's man, Mr. T. J. Dyall, also passed the M.S. Examination.

FOR the second year in succession, the Gold Medal at the

M.D. Examination at the University of London has been carried off by a Bart's man. Last year, Dr. C. Coles secured it, and this year it has been awarded to Dr. H. G. Cook.

AT the M.D. Examination the following Bart's men passed: W. B. Addison, A. S. Blackwell, H. G. Cook, H. A. Eccles, H. E. Knight, H. T. Parker, W. L. Pethybridge, R. Pickard, H. Symonds, F. W. Tunnicliffe, C. E. Wheeler.

IN State Medicine, at the University of London, Drs. G. S. Buchanan and H. Williams have passed.

AT the Examination for the B.S. degree, H. O. Davies, H. W. Armstead, and J. H. Griffiths were successful, and H. O. Davies obtained a second class in Honours.

THE *Year Book* of the Abernethian Society and of the Athletic Clubs can now be obtained gratis by any member of the Abernethian Society and Amalgamated Clubs on application to the Librarian.

THE *Year Book* is the first of its kind issued by the Amalgamated Clubs' Financial Committee. It is a nicely got up book of thirty-five pages, and gives full and official information of the whole of the constituent institutions. It commences with a list of the Finance Committee for the past year and for the present year. The history of the formation of the amalgamation is clearly described, with the mode of procedure to become a member of it. Then follow the rules of the Finance Committee, &c., with last year's balance-sheet. Seven pages are devoted to the Abernethian Society, giving the names of officers, the laws, lists of the papers taken into the Abernethian and smoking-rooms, and the list of papers to be read before the Society during the present session. Each of the constituent clubs receives notice, the officers, rules, and interesting notes about last year's play, and results of matches being given. A list of members, with a short note on the club ground, completes the volume.

A NOTICE has been posted on the School Notice Board directing attention to regulations which have recently been made as to application for students' appointments. In putting his name down for an appointment, in future, a student should apply to the Warden's Clerk for a form of application, which he must fill up and return, instead of, as formerly, applying to the Physician or Surgeon under whom he desired to act.

DR. J. A. HAYWARD has been elected Assistant Physician to the Shadwell Hospital for Children.

Obituary.

PROFESSOR ARTHUR MILNES MARSHALL, M.D., D.Sc., F.R.S.—We regret that we have to announce the death

of Professor Milnes Marshall, who was killed by a fall from a ridge on Lord's Rake on Skawfell, on December 31st last. Professor Marshall will long be remembered by old Bart's men for his many gifts, and his geniality of character endeared him to all who had the privilege of knowing him. By his death science has lost an enthusiastic and careful worker, and Biology in this country has lost one of her most brilliant followers. Professor Marshall was only forty-one years of age, and was an enthusiastic and skilful mountain climber. By a singular coincidence, Professor Marshall met with his death by a similar accident to that which deprived Biology of the most renowned of her workers, Professor F. M. Balfour, of Cambridge. Marshall was Balfour's favourite pupil, and they were close and intimate friends, and both contributed much good work to modern comparative morphology and embryology. Balfour was killed on the Aiguille Blanche in 1882. Professor Marshall began his University career at St. John's College, Cambridge, and in 1874 took his degree with First Class Honours at the head of the Natural Science Tripos. Subsequently he graduated as B.Sc., and later as D.Sc. in the University of London. From Cambridge he went to work at the Stazione Zoologica a Napoli under Dr. Dohrn, where so many eminent biologists have worked. From Naples he returned to Cambridge to assist his friend and master, Balfour, in organising classes in Comparative Morphology. In 1876 he became a student at St. Bartholomew's Hospital, and in 1879 was elected secretary of the Abernethian Society. In 1877 he became a Fellow of St. John's College, Cambridge, and in the summer of 1879 was elected to the professorship of Zoology in the Owens College, Manchester, and in 1885 he was made a Fellow of the Royal Society. His works are numerous. Amongst others, he wrote: "On the Frog," in 1882; "A Junior Course of Practical Zoology," in collaboration with C. Herbert Hurst, Ph.D., in 1888; "Vertebrate Embryology," in 1893. The two former books are well-known textbooks, and the last is likely to become famous, for it introduces the more accurate teaching of a few types into Embryology rather than general statements now too commonly met with. Among his papers may be mentioned: "On the Mode of the Oviposition of Amphioxus," 1876; "On the Early Stages of the Development of the Nerves in Birds," 1877; "The Development of the Cranial Nerves in the Chick," 1878; "Morphology of the Vertebrate Olfactory Organ," 1879; "On the Head Cavities and Associated Nerves in Elasmobranchs," 1881. His loss to education will greatly be felt in connection with the "University Extension," of which movement he was a director, lecturer, and a keen supporter. In Owens College, where as secretary, and later as Chairman of the General Board of Studies, he took an active part in organising the courses of scientific work in the Victoria University, his loss will be keenly felt. He took a lively interest in all athletic pursuits, was chairman of the Athletic Union at Owens, and himself no mean performer in the gymnasium there.

Notices of Meetings and Fixtures.

ABERNETHIAN SOCIETY.

- Jan. 18—T. W. Shore, M.D., "Evolution of Medicine and Medical Teaching."
 „ 25—W. McAdam Eccles, F.R.C.S., "Acute Intussusception."
 Feb. 1—A. E. Garrod, M.D., "Causation of Rickets."
 „ 8—A. E. Cumberbatch, F.R.C.S., "Intra-cranial Complications following Middle-ear Suppuration."
 „ 15—W. P. Herringham, M.D., "Emphysema."

ATHLETICS.

RUGBY FOOTBALL, 1ST XV.

- Jan. 17—East Sheen, at Richmond.
 „ 20—Lennox, at Dulwich.
 „ 24—Civil Service, at Kensal Rise.
 Feb. 3—Upper Clapton, at Clapton.
 „ 10—Ealing, at Kensal Rise.
 „ 12—Leicester, at Leicester.

ASSOCIATION FOOTBALL, 1ST XI.

- Jan. 17—Casuals, at Hornsey.
 „ 20—Crouch End, at Hornsey.
 „ 24—
 „ 27—Reigate Priory, at Worm. Scrubbs.
 „ 31—Vampires, at Worm. Scrubbs.
 Feb. 3—Ilford, at Ilford.
 „ 7—Berkhampstead School, at Berkhamstead.
 „ 10—Beckenham, at Beckenham.
 „ 14—Brighton College, at Brighton.
 „ 17—London Welsh, at Worm. Scrubbs.

ST. BARTHOLOMEW'S HOSPITAL SMOKING CONCERT CLUB.

Jan. 20th. French Room, St. James' Restaurant, Piccadilly, W. Tickets one shilling each. Members are given one ticket to admit a friend. To be had from the Honorary Secretaries, P. W. G. Shelley and D. L. E. Bolton.

Births.

- ANDREWS.—Dec. 18, at 22, Cheyne Gardens, Chelsea, S.W., the wife of Launcelot Andrews, M.D., of a son.
 TAIT.—Dec. 15, at 48, Highbury Park, the wife of Edward Sabine Tait, M.D., of a daughter.
 LUSH.—Dec. 19, at 4, Maresfield Gardens, Hampstead, the wife of Percy J. F. Lush, M.B., M.R.C.S., of a daughter.
 RICE.—Dec. 19, at 90, Woodstock Road, Oxford, the wife of Edward Rice, M.D. (Lond.), of a son.

Marriage.

STEPHENS—HOLT.—Nov. 30, at St. Michael's Church, Headingley, Leeds, by the Rev. John Wardale, M.A., Rector of Datchworth, assisted by the Rev. Canon Wood, Vicar of Headingley, Daniel R. P. Stephens, M.B., F.R.C.S., son of the late Daniel Woolcott Stephens, of Woodford, to Lucy, second daughter of the late Joshua Holt, of Leeds. No cards.